

# **IDHS DIVISION OF TRAINING**

## **FIRE INVESTIGATOR**

### **PRACTICAL SKILLS AND EXAMINATION HANDBOOK**

#### **Purpose of the Skill Sheets**

All skills listed in this packet are consistent with the 2009 edition of the NFPA 1033 Standard for Professional Qualifications for Fire Investigator. The Board of Firefighting Personnel Standards and Education (BFFPSE) provides these skill sheets as the basis for Fire Investigator testing and certification

#### **Description & Use**

1. The Lead Evaluator and Certified Fire Investigator candidate designs these skills sheets for use. Use of this packet throughout an accredited training program will assist in verifying candidate competency and completion of the Fire Investigator Training Record. For eligibility to complete the final certification examination, a candidate must demonstrate competency in all skills during practical skills exam and satisfactorily complete all items on the Fire Investigator training record document.
2. This packet is designed to encompass the requisite skills for Certified Fire Investigator and every skill sheet used for final testing and certification. Lead Evaluator and Certified Fire Investigator course instructors should utilize this evaluation packet during a course to prepare candidates for the certification practical exam.
3. The completion of the Certified Fire Investigator Training Record (Evaluator's check off form) establishes a candidate's eligibility to take the state written exam. The Certified Fire Investigator Training Record shall become a permanent part of the candidate's local training record, and this information shall be kept on file in accordance with local fire department procedures.

#### **Grading Criteria**

1. It is expected that all of the listed skill sheet elements will be taught and evaluated by the Certified Fire Investigator instructor throughout a course. During the final skills exam the candidate must be prepared to perform all the skills listed in this packet. There are specific critical points designated within the practical skill sheets, and the Lead Evaluator will require the candidate to repeat an individual practical skill station if *all* of the listed skill items on a selected sheet are not completed by the candidate.
2. Regardless of which final examination skills are selected, there are critical performance items that must be followed for satisfactory performance. Examples of unsatisfactory performance can include:
  - a. Exceeding limitations: time, safety, and equipment limitations
  - b. Inadequate/insufficient personal protective equipment
  - c. Lack of skill accuracy and task completion as defined on the skill evaluation sheet
  - d. Poor judgment in skill performance (i.e.- wrong application of tool or equipment or safety violation)
  - e. Failure to appropriately apply basic fire investigator knowledge as defined in the standard
  - f. Not competent in the specified task or skill steps
  - g. Outcome of the specified task is in doubt (i.e.- incorrectly performed or did not accomplish skill evaluation criteria)
  - h. Need for Evaluator intervention (i.e.- imminent health or safety risk to candidate or others)
  - i. Failure to adhere to basic safety principles or guidelines

#### **Final Skills Evaluation**

The BFFPSE designated Lead Evaluator conducts the final evaluation and utilizes the practical skills evaluation sheets during the final examination process. Throughout the final examination, the Lead Evaluator has the overall test site authority and is required to perform his or her duties as outlined in the BFFPSE rules. The Lead Evaluator is responsible for preparation of all test site equipment/materials and arranging designated evaluators for the date of the practical examination. The Lead Evaluator must verify that all required elements

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are adequate for testing and will approve all designated Evaluators. The Lead Evaluator shall conduct a safety inspection prior to the start of a practical skills exam to insure scene is safe for candidates.

The Lead Evaluator shall verify completion of the Practical Skills Exam Evaluator's Checklist, and made part of the candidate's permanent local training record.

#### **Additional Notes:**

1. During the final practical examination it is expected that appropriate personal protective equipment (PPE) shall be worn for all skill stations, unless otherwise indicated within the skill evaluation sheet. Some scenarios require the candidate to perform skills while wearing SCBA/respiratory protection. Candidates shall don *all* PPE appropriate for the scenario to maintain "real world" conditions.
2. During some scenarios, a candidate may be instructed to perform other Certified Fire Investigator tasks not directly related to the specific skill sheet evaluation being tested. It is expected that the candidate shall perform all related Certified Fire Investigator skills to the standards.
3. Some skills require equipment be prepared or assembled within the final skills examination. The candidate must demonstrate competency when preparing or assembling equipment.
4. Candidates must be prepared to complete skills under a variety of conditions. Training and skills practice is often done during optimum conditions, but candidates must be prepared to adapt to changing conditions that can occur in "real world" situations. It is important for candidates to identify and respond quickly and appropriately to equipment malfunctions, improper application of tool usage, or other changes within a given scenario. If a candidate begins to use a piece of equipment incorrectly during final skills evaluation, he or she can potentially receive credit for a station if the candidate quickly recognizes and corrects the situation within the scenario/station. In this circumstance, the Evaluator ultimately determines if the candidate has met the criteria specified on the skill(s) being evaluated.
5. For final examination, the performance of a skill, task, or evolution is not required to be done in the exact order of the steps (as outlined on the skill sheet), unless it is critical to a particular task. For example, a person must don turnout gear before donning an SCBA.
6. Some skills may require that a candidate verbalize information about a particular task or procedure. In such cases, any question(s) from the Evaluator to the candidate must be limited to those that satisfy the criteria listed on the skill sheet, and a question cannot exceed the scope the Certified Fire Investigator requirements.

#### **Certified Fire Investigator Written Material References**

- a. NFPA 1033: *Standard for Professional Qualifications for Fire Investigators*, 2009 edition
- b. NFPA 921: *Guide for Fire and Explosion Investigations*, 2011 edition
- c. Jones and Bartlett, *Fire Investigator*, third edition curriculum

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#### **Certified Fire Investigator Practical Skills Exam**

The practical skills exam consists of three scenarios.

1. Structure (accidental cause)
2. Structure (incendiary cause)
3. Vehicle

The fire investigations include scene examination, gathering information, writing reports, interviewing, courtroom proceedings, determining origin and cause of the fire, complete case file for each fire investigation. The investigation shall consist of candidates working as a team on an investigation. Teams shall consist of 1 to 4 candidates and evaluator. Each team shall conduct one complete investigation from one of the scenarios listed above.

Each member of the team shall be assigned at least one individual task to complete during the investigation. All individual tasks must be assigned and completed in the investigation.

1. Photograph the scene.
2. Sketch the scene and take measurements.
3. Conduct interviews with First Responders, owners, witnesses.
4. Gather information for data reports
5. Collect evidence

All members of the team shall work together to perform:

1. Secure scene
2. exterior exam
3. interior exam
4. reconstruct the scene
5. determine origin and cause
6. Create the case file for the fire
7. Present case

*\*Note: The candidate's completed Training Record (Evaluator's check off form) and signed Final Examination skill sheets shall be placed in the candidate's local training file in accordance with fire department procedure.*

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(Critical points) in bold type

Skill #	Task	NFPA Reference
1	<p>Team of candidates meet at fire scene with evaluator, report to command post</p> <ul style="list-style-type: none"> <li>A. Conduct investigation utilizing unified command structure.</li> <li>B. Establish lead investigator/case manager.</li> <li>C. Team shall determine communication plan for on scene communications (radios, phones, etc.) (to communicate with each other during the investigation)</li> <li>D. Evaluator assigns team members individual task <ul style="list-style-type: none"> <li>1. Photograph scene</li> <li>2. Sketching and collect measurements</li> <li>3. Interview first responders, owners, witnesses</li> <li>4. Collect information for data report (includes names, addresses, insurance, utilities, use, responding personnel, dispatch logs</li> <li>5. Collect evidence</li> </ul> </li> </ul>	4.1.6
2	<p>Team receives briefing from Incident Commander (Kirk's 6<sup>th</sup> Edition, pages 198 - 203 )</p> <ul style="list-style-type: none"> <li>A. Document departments and agencies responding to incident</li> <li><b>B. Determine document any injuries or fatalities</b></li> <li>C. Document any problems with fire suppression efforts</li> <li>D. Document when fire was 90% out</li> <li><b>E. Document and address any hazards and safety issues with the scene</b></li> </ul>	4.1.4 4.1.6
3	<p>Team shall assess the scene by performing a 360-degree of the scene. (Kirk's 6<sup>th</sup> Edition, pages 198 - 222 )</p> <ul style="list-style-type: none"> <li><b>A. Complete 360 of scene</b></li> <li><b>B. Document and address any hazards and safety issues with the scene</b></li> <li>C. Determine entry point for the scene and/or structure</li> <li>D. Document other structures that may be involved with scene.</li> <li>E. Identify and document any victim(s) and/or fatalities.</li> <li><b>F. Determine appropriate PPE for the investigation (NFPA 921, 12.6.1)</b> <ul style="list-style-type: none"> <li>a. Personal Protective Equipment (PPE) this may vary due to the condition under which an Investigator may be assessing a scene. At a very minimum the Investigator shall use: <ul style="list-style-type: none"> <li>i. Safety shoes or boots</li> <li>ii. Gloves</li> <li>iii. Head protection</li> <li>iv. Protective clothing such as coveralls or structural PPE</li> <li>v. Filtered mask or Self Contained Breathing Apparatus (SCBA)</li> <li>vi. Eye protection</li> </ul> </li> <li>b. Appropriate PPE is determine by air monitoring the CO level and hazards present at the scene.</li> <li>c. Did the team select the appropriate PPE? (according to AHJ SOP &amp; SOG)</li> <li>d. Did team members wear appropriate PPE during investigation?</li> <li>e. Was air monitoring used inside structure?</li> </ul> </li> </ul>	4.1.3 4.2.2
4	<p>Team shall secure the scene (Kirk's 6<sup>th</sup> Edition, pages 198 - 200 )</p> <ul style="list-style-type: none"> <li><b>A. Designate entry/exit point of personnel</b></li> <li>B. Use marking device to cordon off scene and/or room (for a room and contents fire)</li> </ul>	4.2.1
5	<p>Team shall perform exterior exam (Kirk's 6<sup>th</sup> Edition, page 222 )</p> <ul style="list-style-type: none"> <li><b>A. Document fire damage to structure or vehicle</b></li> </ul>	4.2.2 4.2.3

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	<ul style="list-style-type: none"> <li>B. Document the impact of fire suppression efforts on fire flow</li> <li><b>C. Determine security of structure or vehicle (doors, windows)</b></li> <li>D. Document entry and location of utilities</li> <li>E. Document and mark potential evidence found on exterior</li> </ul>	
6	<p>Individual task - photograph scene (NFPA 921, 2011 Edition, Chapter 15) (Kirk's 6<sup>th</sup> Edition, pages 293 - 297)</p> <ul style="list-style-type: none"> <li>A. Identify the camera used; indicate on photo log name of investigator, time, date, and location of incident.</li> <li><b>B. Begin on the outside of the fire building, establish the location of the scene, landmarks, and building as it sets in relationship to street.</b></li> <li>C. Take photos of exterior, interior, area of origin, potential evidence, items that team request photographed.</li> <li>D. Photos <ul style="list-style-type: none"> <li>a. Exterior photos include 360 view of structure or vehicle</li> <li>b. Photos of scene around the structure or vehicle</li> <li>c. Exterior photos of fire and building damage</li> <li>d. Exterior photos of items marked by the team</li> <li>e. Interior photos of fire and smoke damage</li> <li>f. Interior photos of rooms and contents</li> <li>g. Interior photos of area of origin</li> <li>h. Photos of utilities (electric panel, HVAC systems, and building components)</li> <li>i. Photos of items marked by team members</li> </ul> </li> <li><b>E. Complete photo log for each photo</b></li> <li>F. May include use of video equipment</li> <li>G. Photos indicate proper flash and focal point</li> <li><b>H. Photos presented in electronic file format (CD or DVD)</b></li> </ul>	4.3.2 4.3.3
7	<p>Individual task - sketch scene (NFPA 921, 2011 Edition, Chapter 15) (Kirk's 6<sup>th</sup> Edition, pages 297 - 299 )</p> <ul style="list-style-type: none"> <li>A. Take measurements of structure, rooms (note on sketches)</li> <li><b>B. Sketch of structure layout including rooms, utilities, doorways, windows, other structure features</b></li> <li>C. Sketch room and contents where fire origin is determined</li> <li><b>D. Identify location of furniture and other contents.</b></li> <li><b>E. Identify area/points of origin.</b></li> <li>F. Identify burn patterns, fire travel paths, smoke patterns, and travel.</li> <li>G. Identify fire detection or suppression systems and devices.</li> <li>H. Identify location of evidence.</li> </ul>	4.3.1
8	<p>Individual task - gather information for data reports (NFPA 921, 2011 Edition, Chapter 15) (Kirk's 6<sup>th</sup> Edition, page 305 )</p> <ul style="list-style-type: none"> <li><b>A. Document owner's names and contact information on data form or report.</b></li> <li>B. Document occupants names and contact information</li> <li>C. Document company name of utilities, type of services</li> <li>D. Obtain dispatch log (incident times)</li> <li>E. VIN (for vehicle fire investigation)</li> <li>F. Obtain a list of contents of structure or vehicle</li> </ul>	4.3.3 4.6.1 4.6.2 4.6.4 4.6.5
9	<p>Individual task – interviews (NFPA 921, 2011 Edition, Chapter 13) (Kirk's 6<sup>th</sup> Edition, pages 223 - 225 )</p> <ul style="list-style-type: none"> <li>A. Interview owner and occupants</li> </ul>	4.5.1 4.5.2 4.5.3

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	<ul style="list-style-type: none"> <li>B. <b>Interview first responders</b> (first in firefighters, first on scene responders)</li> <li>C. Interview witnesses and/or bystanders</li> <li>D. Investigator introduces themselves</li> <li>E. <b>Investigator shall positively identify the person being interviewed and document them by name, SSN, DOB, Address, home and work phone number and a physical description, driver license number.</b></li> <li>F. Investigator should document time, date, and location of interview.</li> <li>G. <b>Investigator should outline purpose of the interview.</b></li> <li>H. During interview, investigator should remain calm, professional, positive, and focused.</li> <li>I. Investigator should asked "open-ended questions."</li> <li>J. Document all responses to questions, note any discrepancies, note nonverbal indicators, and general impressions of the interviewee.</li> <li>K. Close the interview and allow the interviewee a chance to provide any additional information.</li> <li>L. Organize and analyze all information collected.</li> <li>M. Identify any gaps in the investigative data.</li> <li>N. Document analysis of information</li> <li>O. <b>Document and/or records interviews</b></li> <li>P. Obtain written statements from interviewees after interviews.</li> </ul>	
10	<p>Individual task – collecting evidence (NFPA 921, 2011 Edition, Chapter 16) (Kirk's 6<sup>th</sup> Edition, pages 299 - 305 )</p> <ul style="list-style-type: none"> <li>A. <b>Identify items as evidence (use marking device)</b></li> <li>B. <b>Document specific location of the evidence at the scene</b></li> <li>C. <b>Document a description of the evidence and any unique markings or labeling.</b></li> <li>D. <b>Document date, time, and location the evidence was collected.</b></li> <li>E. <b>Complete evidence log</b></li> <li>F. <b>Collect evidence</b> <ul style="list-style-type: none"> <li>a. Use proper collection techniques</li> <li>b. Use proper storage package or container</li> </ul> </li> <li>G. <b>Maintain chain of custody of evidence.</b></li> <li>H. <b>Document and maintain security of evidence.</b></li> </ul>	4.4.1 4.4.2 4.4.3 4.4.4
11	<p>Team conducts interior exam (minimum two candidates) (Kirk's 6<sup>th</sup> Edition, pages 224 - 291)</p> <ul style="list-style-type: none"> <li>A. <b>Team members wearing appropriate PPE for conditions</b> (NFPA 921, 12.6.1) <ul style="list-style-type: none"> <li>a. Personal Protective Equipment (PPE) this may vary due to the condition under which an Investigator may be assessing a scene. At a very minimum the Investigator should use: <ul style="list-style-type: none"> <li>i. Safety shoes or boots</li> <li>ii. Gloves</li> <li>iii. Head protection</li> <li>iv. Protective clothing such as coveralls or structural PPE</li> <li>v. Filtered mask or Self Contained Breathing Apparatus (SCBA)</li> <li>i. Eye protection</li> </ul> </li> <li>b. Appropriate PPE is determine by air monitoring the CO level and hazards present at the scene.</li> </ul> </li> <li>B. <b>Observe and document fire damage from least to worst</b></li> <li>C. Document smoke layering</li> <li>D. Observe and document damage and effect of fire</li> <li>E. Determine impact of fire suppression efforts on fire</li> </ul>	4.2.3 4.2.4 4.2.5 4.2.6 4.2.7 4.2.8 4.6.3

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	<ul style="list-style-type: none"> <li>F. Document protected areas</li> <li><b>G. Determine presence and/or absence of contents</b></li> <li>H. Interpret the effects of burning characteristics on different types of materials.</li> <li>I. Interpret variation of fire patterns on different materials</li> <li>J. Employ search techniques that further the discovery of the origin and cause of the fire.</li> <li>K. Return content items to their original position using protected areas and fire patterns</li> <li><b>L. Locate and document conditions of building systems (HVAC, utilities, and building components)</b> <ul style="list-style-type: none"> <li>a. Determine system's operations</li> <li>b. Determine effects on the fire</li> <li>c. Identify any alterations to systems</li> <li>d. Identify indicators of system failures</li> <li>e. Identify any impact from systems on suppression efforts</li> </ul> </li> <li>M. Identify and document any explosive effects on glass, walls, foundation, and other building materials.</li> <li>N. Distinguish between low- and high-order explosion effects.</li> <li>O. Demonstrate proper use of investigation tools and equipment.</li> <li>P. Determine if expert resources are needed for further investigation</li> <li>Q. Identify and document ignition source(s).</li> </ul>	
12	<p>Team shall create case file (Kirk's 6<sup>th</sup> Edition, pages 661 - 663)</p> <ul style="list-style-type: none"> <li>A. Gather all information, data, photos, videos (if use), interview statements and/or recordings</li> <li>B. Team shall determine what information to include in case file.</li> <li>C. Case file submitted to evaluator within period set by the evaluator.</li> <li><b>D. Team create case reports that includes:</b> <ul style="list-style-type: none"> <li>a. <b>Data reports</b> (report form provided by evaluator)</li> <li>b. <b>Sketches</b></li> <li>c. <b>Photos (photo file on CD or DVD)</b></li> <li>d. <b>Photo log</b></li> <li>e. <b>Interviews</b></li> <li>f. <b>Evidence log</b></li> <li>g. <b>Narrative</b></li> </ul> </li> <li><b>E. Determine and document conclusion of case.</b> <ul style="list-style-type: none"> <li>a. <b>Area or point of origin</b></li> <li>b. <b>Determine of fire cause (natural, accidental, incendiary, undetermined)</b></li> </ul> </li> </ul>	<p>4.7.1</p> <p>4.7.2</p>
13	<p>Team presents case to legal panel (courtroom presentation) (Kirk's 6<sup>th</sup> Edition, pages 663 - 675)</p> <ul style="list-style-type: none"> <li>A. Each team member involved in presentation</li> <li><b>B. Candidate able to answer questions correctly according to case file</b></li> <li><b>C. Team present case professional and accurately</b></li> <li>D. Team members attire are professional (example: dress shirt, ties, slacks, dress shoes)</li> <li><b>E. Presentation shall include items listed in 12-D &amp; 12-E</b></li> </ul> <p>Notes to evaluator</p> <ol style="list-style-type: none"> <li>1. Legal panel shall consist of positions for prosecutor, defense attorney, and court judge. The positions shall be filled with persons who have courtroom procedure experience.</li> <li>2. There shall be questioning from the prosecutor and defense attorney.</li> <li>3. Presentation and proceedings shall last at least 30 minutes per team.</li> <li>4. Room shall be setup as a courtroom for this section.</li> <li>5. Each team member shall present parts of the case file they were assigned to complete.</li> </ol>	<p>4.7.2</p> <p>4.7.3</p> <p>4.7.4</p>

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